**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1.     (Currently amended) A method in a data processing system for monitoring execution of instructions, the method comprising:

executing a program;

identifying a routine that is used more than a threshold number of times during execution of the program as a routine of interest;

responsive to identifying the routine of interest during execution of the program, dynamically associating instructions in the identified routine of interest with a set of performance indicators to form a modified routine <u>having the instructions</u>, wherein the set of performance indicators comprises ~~one of a set of performance indicators comprising~~ one or more bits located in fields within the instructions <u>in the</u> <u>modified routine</u> ~~and a set of performance indicators comprising metadata located in a shadow memory~~, and wherein the set of performance indicators ~~identify~~ <u>identifies</u> that the instructions <u>in the modified</u> <u>routine</u> are to be monitored; and

responsive to execution of an instruction <u>of the instructions</u> in the modified routine during continued execution of the program, incrementing a counter, wherein the counter provides a value identifying a number of times that the instruction <u>of the instructions</u> in the modified routine is executed.

2.     (Currently amended)  The method of claim 1 further comprising:

associating <u>other</u> instructions in a second routine of interest with a second set of performance indicators to form a second modified routine <u>having the other instructions</u>; and

responsive to execution of [[an]] <u>another</u> instruction <u>of the other instructions</u> in the second modified routine, incrementing a second counter, wherein the second counter provides a value identifying a number of times that the <u>other</u> instruction <u>of the other instructions</u> in the second modified routine is executed.

3-24.   (Canceled)

25.      (Currently amended)  A method in a data processing system for monitoring execution of instructions, the method comprising:

executing a program;

identifying a routine that is used more than a threshold number of times during execution of the program as a first routine of interest;

responsive to identifying the first routine of interest during execution of the program, dynamically associating first instructions in the identified first routine of interest with a first set of performance indicators to form a first modified routine having the first instructions, wherein the first set of performance indicators comprises ~~one of a first set of performance indicators comprising~~ one or more first bits located in fields within the first instructions ~~and a first set of performance indicators comprising first metadata located in a first shadow memory~~, and wherein the first set of performance indicators identifies ~~identify~~ that the first instructions are to be monitored;

responsive to execution of an instruction of the first instructions in the first modified routine during continued execution of the program, incrementing a first counter, wherein the first counter provides a value identifying a number of times that the instruction of the first instructions ~~instruction~~ in the first modified routine is executed;

associating second instructions in a second routine of interest with a second set of performance indicators to form a second modified routine having the second instructions, wherein the second set of performance indicators comprises ~~one of a second set of performance indicators comprising~~ one or more second bits located in fields within the second instructions ~~and a second set of performance indicators comprising second metadata located in a second shadow memory~~, and wherein the second set of performance indicators ~~identify~~ identifies that the second instructions are to be monitored; and

responsive to execution of an instruction of the second instructions in the second modified routine, incrementing a second counter, wherein the second counter provides a value identifying a number of times that the instruction of the second instructions in the second modified routine is executed.